



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE BOTANICAL GAZETTE

THE UNIVERSITY OF CHICAGO PRESS  
CHICAGO, ILLINOIS

---

**Agents**

THE CAMBRIDGE UNIVERSITY PRESS  
LONDON AND EDINBURGH

THE MARUZEN-KABUSHIKI-KAISHA  
TOKYO, OSAKA, KYOTO

KARL W. HIERSEMANN  
LEIPZIG

THE BAKER & TAYLOR COMPANY  
NEW YORK

THE  
BOTANICAL GAZETTE

---

EDITOR  
JOHN MERLE COULTER

---

VOLUME LVII  
JANUARY-JUNE, 1914

---

WITH TWENTY-NINE PLATES AND ONE HUNDRED AND FIFTEEN FIGURES



THE UNIVERSITY OF CHICAGO PRESS  
CHICAGO, ILLINOIS

Published  
January, February, March, April, May, June, 1914

Composed and Printed By  
The University of Chicago Press  
Chicago, Illinois, U.S.A.

## TABLE OF CONTENTS

---

	<small>PAGE</small>
The development of <i>Magnolia</i> and <i>Liriodendron</i> , including a discussion of the primitiveness of the Magnoliaceae (with plates I-III)	<i>Willis Edgar Maneval</i> 1
The maturation phases in <i>Smilax herbacea</i> (with plates IV-VI) - - - - -	<i>Marion G. Elkins</i> 32
Comparative histology of alfalfa and clovers (with eight figures) - - - - -	<i>Kate Barber Winton</i> 53
The rôle of oxygen in germination. Contributions from the Hull Botanical Laboratory 181 - - -	<i>Charles A. Shull</i> 64
Studies on the reactions of <i>Pilobolus</i> to light stimuli (with twelve figures) - - - - -	<i>Hally D. M. Jolivette</i> 89
Morphology of <i>Thismia americana</i> . Contributions from the Hull Botanical Laboratory 182 (with plates VII-XI) - - - - -	<i>Norma E. Pfeiffer</i> 122
Concerning the presence of diastase in certain red algae - - - - -	<i>E. T. Bartholomew</i> 136
The male gametophyte of <i>Abies</i> (with fifteen figures) - - - - -	<i>A. H. Hutchinson</i> 148
The anatomy of <i>Ophioglossum pendulum</i> . Contributions from the Hull Botanical Laboratory 183 (with sixteen figures) - - - - -	<i>Loren C. Petry</i> 169
Some effects of colloidal metals on <i>Spirogyra</i> (with four figures) - - - - -	<i>W. D. Hoyt</i> 193
The function of manganese in plants - - - - -	<i>W. P. Kelley</i> 213
The development of the prothallium of <i>Camp- tosorus rhizophyllus</i> (with plates XII and XIII and eight text figures) - - - - -	<i>F. L. Pickett</i> 228
The effect of shading on the transpiration and assimilation of the tobacco plant in Cuba (with one figure) - - - - -	<i>Heinrich Hasselbring</i> 257
A preliminary inquiry into the significance of tracheid-caliber in Coniferae - - - - -	<i>Percy Groom</i> 287
Note on the ascosporic condition of the genus <i>Aschersonia</i> Montagne (with seven figures) -	<i>Roland Thaxter</i> 308
Morphological instability, especially in <i>Pinus radiata</i> (with plate XIV and two text figures) -	<i>Francis E. Lloyd</i> 314

	PAGE
Life history of <i>Porella platyphylla</i> . Contributions from the Hull Botanical Laboratory 184 (with plates XV and XVI) - - - - -	<i>Florence L. Manning</i> 320
The effect of climatic conditions on the rate of growth of date palms (with one figure) - - -	<i>A. E. Vinson</i> 324
The probable origin of <i>Oenothera Lamarckiana</i> Ser. (with plates XVII-XIX) - - - - -	<i>Hugo De Vries</i> 345
The spur shoot of the pines (with plates XX-XXIII and two text figures) - - - - -	<i>Robert Boyd Thomson</i> 362
A physiological study of the germination of <i>Avena fatua</i> . Contributions from the Hull Botanical Laboratory 185 (with thirteen figures) - - -	<i>W. M. Atwood</i> 386
Undescribed plants from Guatemala and other Central American Republics. XXXVIII - -	<i>John Donnell Smith</i> 415
The ovary and embryo of <i>Cyrtanthus sanguineus</i> . Contributions from the Hull Botanical Laboratory 186 (with plate XXIV and three text figures) - - - - -	<i>Margaret Elizabeth Farrell</i> 428
Winter as a factor in the xerophily of certain evergreen ericads (with twelve text figures) - - -	<i>Frank Caleb Gates</i> 445
The morphology of <i>Araucaria brasiliensis</i> . II. The ovulate cone and female gametophyte (with plates XXV-XXVII and two text figures) - - - - -	<i>L. Lancelot Burlingame</i> 490
The origin of monocotyledony. Contributions from the Hull Botanical Laboratory 187 (with plates XXVIII and XXIX and two text figures) - - - - -	<i>John M. Coulter and W. J. G. Land</i> 509
A method of controlling the temperature of the paraffin block and microtome knife. Contributions from the Hull Botanical Laboratory 188 (with two figures) - - - - -	<i>W. J. G. Land</i> 520

## BRIEFER ARTICLES—

A method of handling material to be imbedded in paraffine (with one figure) - - - - -	<i>Winfield Dudgeon</i> 70
The relation between the transpiration stream and the absorption of salts - - - - -	<i>Heinrich Hasselbring</i> 72
The type species of <i>Danthonia</i> - - - - -	<i>A. S. Hitchcock</i> 328
A method of handling material to be imbedded in paraffine (with one figure) - - - - -	<i>Elda R. Walker</i> 330
A correction - - - - -	<i>E. M. East</i> 331

	PAGE
Successful artificial cultures of <i>Clitocybe illudens</i> and <i>Armillaria mellea</i> (with three figures) - - - - -	<i>V. H. Young</i> 524
The amount of bare ground in some mountain grasslands - - - - -	<i>Francis Ramaley</i> 526
The oxidases of acid tissues - - - - -	<i>G. B. Reed</i> 528
The type species of <i>Danthonia</i> - <i>Aven Nelson</i> and <i>J. Francis Macbride</i>	530
Maturation in <i>Vicia</i> - - - - -	<i>Lester W. Sharp</i> 531
<b>CURRENT LITERATURE</b> - - - - -	74, 154, 239, 332, 437, 532
For titles of book reviews see index under author's name and reviews	
Papers noticed in "Notes for Students" are indexed under author's name and subjects	

---

#### DATES OF PUBLICATION

No. 1, January 16; No. 2, February 14; No. 3, March 14; No. 4, April 15; No. 5, May 16; No. 6, June 19.

## ERRATA

### VOL. LVI

- P. 491, line 4 from bottom, for accitillo read aceitillo.  
P. 494, line 4 from bottom, for *B. incisa* (L.) G. Don read *B. incisa* (Ker) G. Don.

### VOL. LVII

- P. 308, footnote, for LXII read LXXII.  
P. 415, line 12 from top, for ongam read longam.  
P. 417, line 9 from top, for dela read de la.  
P. 424, line 18 from top, insert comma after lata; and for petiole read petiolo.  
P. 424, line 23 from top, for insertionen read insertionem; and omit comma after insertionem.  
P. 430, legend of Fig. 3, for petals read perianth; and for sepals read stamens.